Standard A Antennas
(before June 1, 1997)

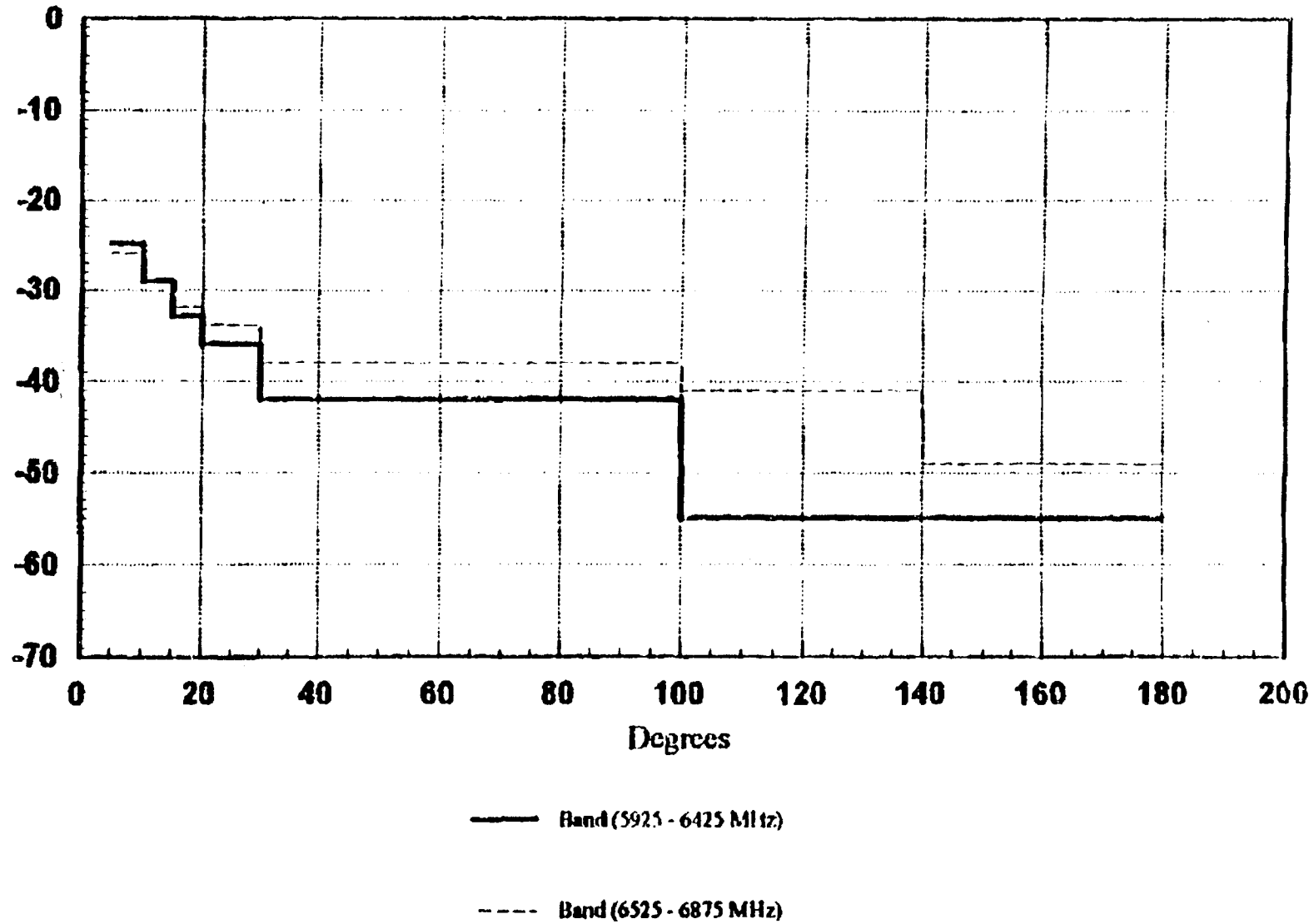

FIGURE #1

Standard A Antennas
(after June 1, 1997)

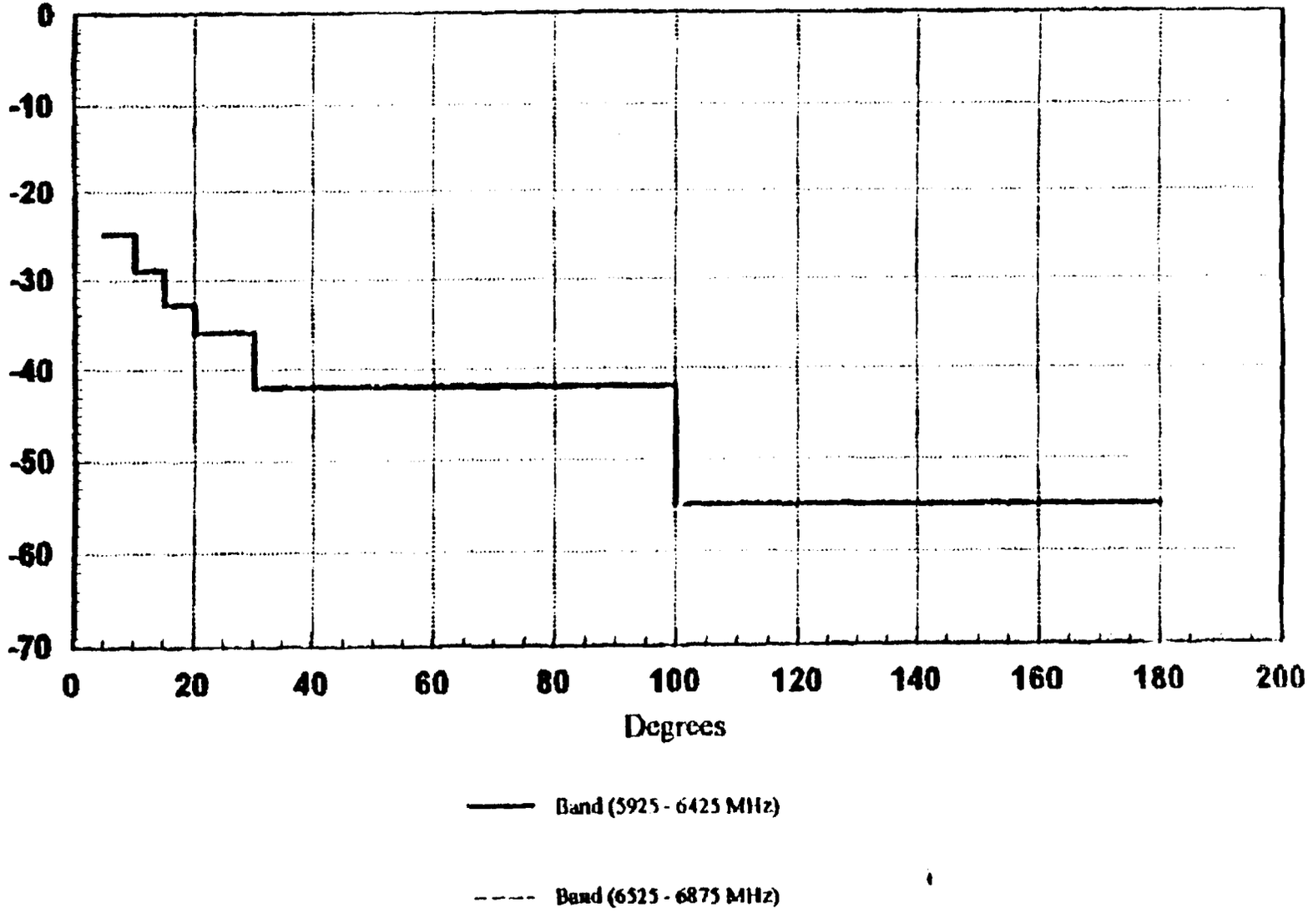

FIGURE #2

Standard B Antennas
(before June 1, 1997)

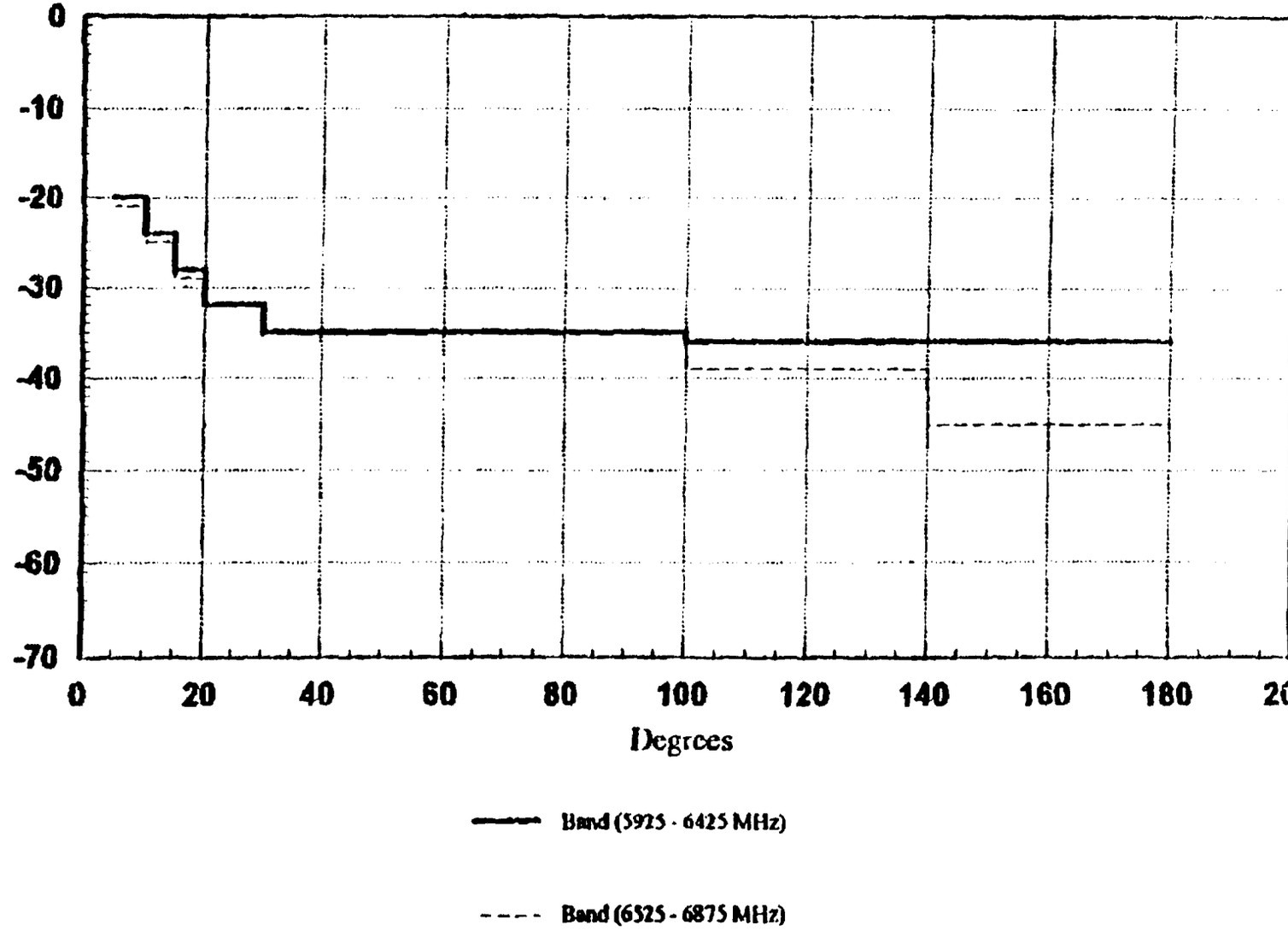

FIGURE #3

Standard B Antennas
(after June 1, 1997)

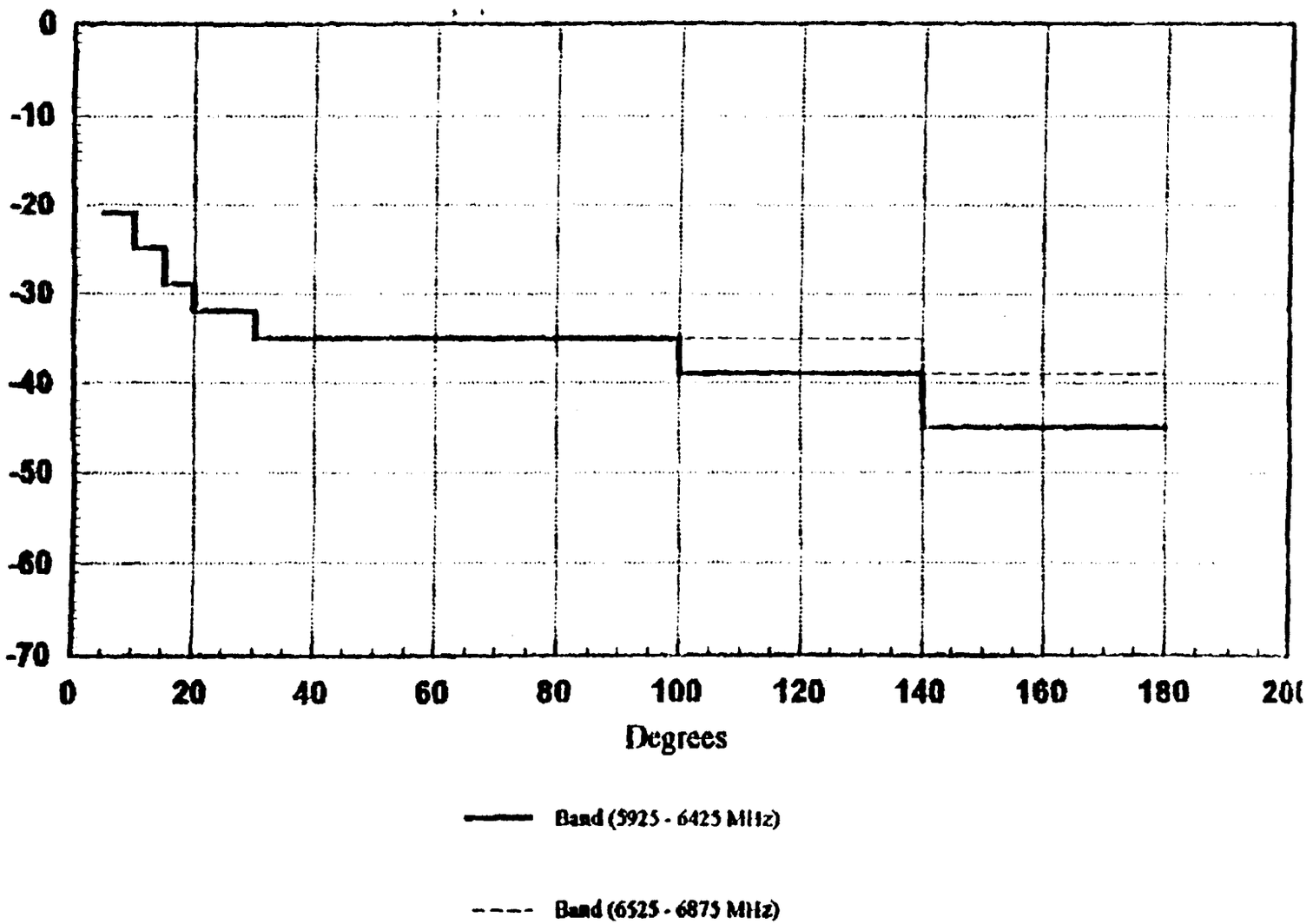

FIGURE #4

EMISSION AND BANDWIDTH LIMITATIONS

PROPOSED RULE:

Section 101.____ EMISSION AND BANDWIDTH LIMITATIONS.

(a) Each authorization issued pursuant to these rules will show, as the emission designator, a symbol representing the class of emission which shall be prefixed by a number specifying the necessary bandwidth. This figure does not necessarily indicate the bandwidth actually occupied by the emission at any instant. In those cases where Part 2 of this chapter does not provide a formula for the computation of the necessary bandwidth, the occupied bandwidth may be used in the emission designator.

(b) The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

(1) When using transmissions other than those employing digital modulation techniques:

(i) On any frequency removed from the assigned frequency by more than 50% up to and including 100% of the authorized bandwidth: At least 25 decibels;

(ii) On any frequency removed from the assigned frequency by more than 100% up to and including 250% of the authorized bandwidth: At least 35 decibels;

(iii) On any frequency removed from the assigned frequency by more than 250% of the authorized bandwidth: At least 43 + 10 Log_{10} (mean output power in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(2) When using transmissions employing digital modulation techniques (see [§21.122(b)]) in situations other than those covered by paragraph (b)(3) of this section:

(i) For operating frequencies below 15 GHz, in any 4 KHz band, the center frequency of which is removed from the assigned frequency by more than 50% up to and including 250% of the authorized bandwidth: As specified by the following equation but in no event less than 50 decibels. $A=35+0.8\ (P - 50) + 10\ Log_{10}B$. (Attenuation greater than 80 decibels is not required.)

where:

A = Attenuation (in decibels) below the mean output power level.

P = Percent removed from the carrier frequency.

B = Authorized bandwidth in MHz.

(ii) For operating frequencies above 15 GHz, in any 1 MHz band, the center frequency of which is removed from the assigned frequency by more than 50% up to and including 250% of the authorized bandwidth: As specified by the following equation but in no event less than 11 decibels. $A=11+0.4\ (P - 50) + 10\ Log_{10}B$. (Attenuation greater than 56 decibels is not required.)

(iii) In any 4 KHz band, the center frequency of which is removed from the assigned frequency by more than 250% of the authorized bandwidth: At least $43 + 10\ Log_{10}$ (mean output power in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(3) For Digital Termination System channels used in the Digital Electronic Message Service (DEMS) operating in the 10,550 - 10,680 MHz band:

(i) In any 4 KHz band, the center frequency of which is removed from the edge of the DEMS channel by up to and including 1.125 times the DEMS subchannel bandwidth: As specified by the following equation shall in no event be less than $50 + 10\ log_{10}N$ decibels.

$A = 50 + 0.0333 (F-0.5B) + 10 \log_{10}N$ decibels

Where:

A = Attenuation (in decibels) below mean output power level contained within the DEMS channel for a given polarization.
B = Bandwidth of DEMS channel (in KHz).
F = Absolute value of the difference between the center frequency of the 4 KHz band measured and the center frequency of the DEMS channel (in KHz).
N = Number of active subchannels of the given polarization within the DEMS channel.

(ii) In any 4 KHz band within the authorized DEMS band the center frequency of which is removed from the center frequency of the DEMS channel by more than the sum of 50% of the DEMS channel bandwidth plus 1.125 times the subchannel bandwidth: As specified by the following equation but in no event less than 80 decibels.

$A = 80 + 10 \log_{10} N$ decibels

(iii) In any 4 KHz band the center frequency of which is outside the authorized DEMS band:

At least $43 + 10 \log_{10}$ (mean output power in Watts) decibels.

(4) For Digital Termination System channels used in the Digital Electronic Message Service (DEMS) operating in the 17,700 - 19,700 MHz band:

(i) In any 4 KHz band, the center frequency of which is removed from the frequency of the center of the DEMS channel by more than 50% of the DEMS channel bandwidth up to and including 50% plus 500 KHz: As specified by the following equation but in no event be less than $50 + 10 \log_{10} N$ decibels.

$A = 50 + 0.06 (F - 0.5B) + 10 \log_{10} N$ decibels

Where:

A = Attenuation (in decibels) below mean output power level contained within the DEMS channel for a given polarization.

B = Bandwidth of DEMS channel (in KHz).
F = Absolute value of the difference between the center frequency of the 4 KHz band measured and the center frequency of the DEMS channel (in KHz).
N = Number of active subchannels of the given polarization within the DEMS channel.

(ii) In any 4 KHz band within the authorized DEMS band, the center frequency of which is removed from the center frequency of the DEMS channel by more than the sum of 50% of the channel bandwidth plus 500 KHz: as specified by the following equation but in no event less than 80 decibels.

$A = 80 + 10 \log_{10} N$ decibels

(iii) In any 4 KHz band the center frequency of which is outside the authorized Digital Message Service band:

At least $43 + 10 \log_{10}$ (mean output power in Watts) decibels.

(c) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraph (b) of this section.

(d) Different types of emissions may be authorized if the applicant describes fully the modulation and bandwidth desired, and demonstrates that the bandwidth desired is no wider than needed to provide the intended service. In no event, however, shall the necessary or occupied bandwidth exceed the specified channel width of the assigned pair.

(e) The maximum bandwidth that will be authorized per frequency is set out in the table that follows. Regardless of the maximum authorized bandwidth specified for each frequency band, the Commission reserves the right to issue a license for less than the maximum bandwidth if it appears that a lesser bandwidth would be sufficient to support an applicant's intended communications. For systems operating at 1 DS-1 (24 voice channels) or above, the required maximum bandwidth only can be related to a "standard" of DS-1 (1, 2, 4, 8, 12, 16, 28),

DS-3 (1, 2, 3, 6) or STS-1 (1, 2, 3, 6, 9, 12, etc.) being used. Any bit/s/Hz efficiency figure should be computed accordingly. For example, a 4 DS-1 system which is 70% loaded cannot be asked to use a bandwidth corresponding to 70% of the one that would be granted for another DS-1 system that shows 100% loading. In no case can the Commission require the potential licensee to use a channel bandwidth for which commercial equipment is not available.

Frequency Band (KHz)	Maximum authorized bandwidth*			
928.0 to 929.0	12.5,	25 KHz	(1)	(6)
932.0 to 932.5, 941.0 to 941.5	12.5,	KHz	(1)	
932.5 to 935.0, 941.5 to 944.0	12.5,	25, 50, 100, 200 KHz	(1)	
952.0 to 960.0	12.5,	25, 50, 100, 200 KHz	(1)	(5)
1,850 to 1,990	5	or 10 MHz	(1)	
2,110 to 2,130	3.5	MHz		
2,130 to 2,150	800	or 1600 KHz	(1)	
2,150 to 2,160	10	MHz		
2,160 to 2,180	3.5	MHz		
2,180 to 2,200	800	or 1600 KHz	(1)	
2,450.0 to 2,483.5	625	KHz	(2)	
2,483.5 to 2,500.0	800	KHz		
3,700 to 4,200	20	MHz		
5,925 to 6,425	30	MHz	(1)	
6,425 to 6,525	25	MHz		
6,525 to 6,875	10	MHz	(1)	
10,550 to 10,680	5	MHz	(1)	
10,700 to 11,700	40	MHz	(1)	
12,200 to 12,700	10	or 20 MHz	(1)	
13,200 to 13,250	25	MHz		
17,700 to 18,140	220	MHz		
18,140 to 18,142	2	MHz		
18,142 to 18,580	6	MHz		
18,580 to 18,820	20	MHz		
18,820 to 18,920	10	MHz		
18,920 to 19,160	20	MHz		
19,160 to 19,260	10	MHz		
19,260 to 19,700	220	MHz		
21,200 to 23,600	up to 100	MHz	(4)	
27,500 to 29,500	220	MHz		
31,000 to 31,300	25	or 50 MHz		
38,600 to 40,000	up to 50	MHz		

Bands above 40,000 MHz . . . . . (3)

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*Digital transmitter emission bandwidths should include ambient variations (temperature, input voltage, etc.).

(1) The maximum bandwidth that will be authorized for each particular frequency in this band is detailed in the appropriate frequency table in [§94.65].

(2) 1250 KHz, 1875 KHz, or 2500 KHz on a case-by-case basis.

(3) To be specified in authorization.

(4) For exceptions see [§94.91].

(5) A 12.5 bandwidth applies only to frequencies listed [§94.65(a)(1)].

(6) For frequencies listed in [§94.65(a)(1)], consideration will be given on a case-by-case basis to authorizing bandwidths up to 50 KHz.

REASON FOR RULE:

TIA proposes retaining Part 21 rules (i.e., Sections 21.105, 21.106, 21.107 and 21.508) because they are more consistent with current industry usage. For digital systems, minimum payload capacities are expressed in numbers of DS-1s, DS-3s or STS-1s. For low, medium, and high capacity digital systems (greater than or equal to 1 DS-1 or 24 voice channels), the necessary bandwidth calculations should be based on those recognized interfaces. The rules should be revised to recognize that low, medium or high capacity radios do not, in practice, transmit at N X DS-0 capacities or bandwidths. Only radios with integer multiples of DS-1 or DS-3 data rates are commercially available.

TIME FOR CONSTRUCTION

PROPOSED RULE:

SECTION 101.___ PERIOD OF CONSTRUCTION; CERTIFICATION OF COMPLETION OF CONSTRUCTION.

(a) Each license for a radio station for the services included in this Part shall specify as a condition therein the period during which construction of facilities will be completed and the station made ready for operation. Construction may not commence until expiration of the public notice period and must be completed by the date specified in the license as the termination date of the construction period. Except as may be limited by [§21.45(b)] or otherwise determined by the Commission for any particular application, the following shall be the maximum construction periods for each service:

(1) For stations in the Point-to-Point Microwave Radio and Digital Electronic Message Service, a maximum of 18 months from the date of the license grant;

(2) For all other stations licensed under this Part, a maximum of 12 months from the date of the license grant.

(b) Each license for a radio station for the services included in this Part shall also specify as a condition therein that upon the completion of construction, each licensee must file with the Commission a certification of completion of construction using FCC Form 494A, certifying that the facilities as authorized have been completed and that the station is now operational and ready to provide service to the public, and will remain operational during the license period, unless the license is submitted for cancellation.

REASON FOR RULE:

TIA proposes adopting the 18-month construction period granted to Part 21 licensees instead of the 12-month period granted Part 94 licensees. Due to conditions beyond the

licensee's control, such as adverse weather, licensees often only have 6 months out of the year to construct. Thus, the 18-month period, which has not resulted in any significant problems under Part 21, is more appropriate and must be adopted.

In addition, TIA proposes that construction could commence upon expiration of the public notice period instead of upon license grant. Once the public notice period expires, permitting construction (but not operation unless temporary authorization is granted) would expedite introduction of service when the license is granted.

WAIVER REQUESTS

PROPOSED RULE:

SECTION 101.____ WAIVER OF RULES.

Waivers of the rules set forth in this Part may be granted upon application or on the Commission's own motion. A request for waiver shall contain a statement of reasons sufficient to justify a waiver. A waiver will not be granted except upon an affirmative showing that:

(a) The underlying purpose of the rule will not be served, or would be frustrated, by its application in the particular case, and that grant of the waiver is otherwise in the public interest; or

(b) The unique facts and circumstances of a particular case render application of the rule inequitable, unduly burdensome or otherwise contrary to the public interest. Applicants must also show the lack of a reasonable alternative.

REASON FOR RULE:

TIA proposes adopting the Part 21 waiver requirements. This rule specifies conditions for grant of a waiver consistent with Section 1.3 of the Commission's Rules and applicable precedent thereunder.

TRANSITION PLAN

PROPOSED RULE:

Section 101.____ TRANSITION PROVISION FOR COMPLIANCE WITH THE RULES.

All systems subject to Parts 21 and 94 of the Rules, which are licensed or which are proposed in an application on file, as of the effective date of Part 101, can meet the requirements under Part 21 or Part 94, as applicable, indefinitely, except if interference is caused to systems licensed under Part 101. If such interference occurs, the grandfathered licensee must eliminate the interference to the Part 101 licensee.

REASON FOR RULE:

Microwave users need adequate time to adjust upon adoption of the Part 101 requirements. This transition period will provide such flexibility.

TEMPORARY AUTHORIZATIONS AND OPERATION

PROPOSED RULE:

Section 101.____ (a) SPECIAL TEMPORARY AUTHORIZATIONS AND OPERATION.

(1) In circumstances requiring immediate or temporary use of facilities, request may be made for special temporary authority to install and/or operate new or modified equipment. Any such request may be submitted as an informal application in the manner set forth in [§21.5] and must contain full particulars as to the proposed operation including all facts sufficient to justify the temporary authority sought and the public interest therein. No such request will be considered unless the request is received by the Commission at least 10 days prior to the date of proposed construction or operation or, where an extension is sought, expiration date of the existing temporary authorization.

(2) Special temporary authorization may be granted upon a written request in the following circumstances:

(i) In emergency situations;

(ii) To permit restoration or relocation of existing facilities to continue communication services;

(iii) To conduct tests to determine necessary data for the preparation of an application for regular authorization;

(iv) For a temporary non-recurring service where a regular authorization is not appropriate.

(v) In other situations involving circumstances which are of such an extraordinary nature that delay in the institution of temporary operation would seriously prejudice the public interest.

(3) The Commission may grant requests for special temporary authority without issuing the public notice provided for in §1.962 of this chapter for periods not exceeding 180 days, if there are extraordinary circumstances supporting the request and where delay in commencing temporary operation would seriously prejudice the public interest. Requests for special temporary authorization not involving extraordinary circumstances may be granted without public notice for a period of 30 days where an application for regular operation is not contemplated or for 60 days pending or after the filing of an application for regular operation.

(4) The Commission may grant requests for blanket special temporary authority (BSTA) to construct and operate point-to-point microwave radio systems at various locations within the United States until such time as a request for permanent authorization is acted upon by the Commission, such period not to exceed six (6) months.

(i) BSTA would apply only to stations for which an application has been accepted for filing by the Commission, and which has appeared on public notice issued by the Commission;

(ii) All operations conducted under the BSTA will be in exact accordance with an associated application(s) on file with the Commission, with the exception of those minor modifications which may be made without prior notice to the Commission under [Section 21.42] of the Commission's rules. In the event that such modification(s) is made, the appropriate Form 494 will be timely filed with the Commission in accordance with [Section 21.42(b)(3)] of the Commission's rules;

(iii) The associated application(s) will not have been dismissed, granted, or otherwise finally disposed of by the Commission. When the associated application(s) is finally disposed of by the Commission, the BSTA would cease to be effective with respect to that application(s);

(iv) The associated application(s) will not require a waiver of the Commission's rules;

(v) The associated application(s) does not propose operation within 35 miles (_____ km) of any international border, nor within a radio "Quiet Zone" and monitoring facilities, see [Section 21.113] of the Commission's rules, 47 C.F.R. [Sec. 21.113];

(vi) The antenna(s) is no more than twenty (20) feet (_____ meters) above the ground or manmade structure other than a tower or pole, or is mounted on a structure that complies with an existing and approved Federal Aviation Administration Final Determination;

(vii) All proposed operations have been fully and successfully coordinated as required by Section [21.100 of the Commission's rules];

(viii) Operation under the BSTA will not cause interference. Should interference occur, operations will be terminated immediately;

(ix) The associated application(s) will have no significant impact on the environment, as set forth in Section 1.1301, et seq. of the Commission's rules, 47 C.F.R. Sec. 1.1301;

(x) If an applicant possesses BSTA authority, individual STA requests are unnecessary except under extraordinary circumstances. During operation under the BSTA, the Commission neither requires nor desires notification of completion of construction or commencement of operation unless otherwise directed by the Commission;

(xi) As a condition of grant of any BSTA, the Commission may, at any time and without hearing or notice, rescind that BSTA for any reason. A grantee of a BSTA accepts that any operation conducted under authority of the BSTA is at its sole risk and that grant

of a BSTA will not prejudice the outcome of action on any application(s) associated with the BSTA.

(5) Request for special temporary authority or BSTA shall contain the following information:

(i) Name, address, and citizenship status of applicant;

(ii) Need for special action, including a description of any emergency or damage to equipment;

(iii) Type of operation to be conducted;

(iv) Purpose of operation;

(v) Time and date of operation desired;

(vi) Class of station and nature of service;

(vii) Location of station and points with which station will communicate;

(viii) Equipment to be used, specifying manufacturer, model number, and number of units;

(ix) Frequency(s) desired;

(x) Azimuth and beamwidth of major lobe of transmitting antenna and ERP;

(xi) Type of emission;

(xii) Description of antenna to be used, including height.

(xiii) Confirmation that prior coordination is complete.

(6) In cases of emergency found by the Commission, involving danger to life or property or due to damage of equipment, or during a national emergency proclaimed by the President or declared by the Congress or during the continuance of any war in which the United States is engaged and when such action is necessary for the national defense or safety or otherwise in furtherance of the war effort, or in cases of emergency where the Commission finds

that it would not be feasible to secure renewal applications from existing licensees or otherwise to follow normal licensing procedure, the Commission will grant construction permits and station licenses, or modifications or renewals thereof, during the emergency found by the Commission or during the continuance of any such national emergency or war, as special temporary licenses, only for the period of emergency or war requiring such action, without the filing of formal applications.

(b) TEMPORARY SERVICE AUTHORIZATIONS

(1) Authorizations may be issued upon proper application for the use of frequencies listed in [§21.701(a)] by stations in the Point-to-Point Microwave Radio Service for rendition of temporary service to subscribers under the following conditions:

(i) When a fixed station is to remain at a single location for less than 6 months, the location is considered to be temporary. Services which are initially known to be of longer than 6 months' duration shall not be provided under a temporary fixed authorization but rendered pursuant to a regular license.

(ii) When a fixed station, authorized to operate at temporary locations, is to remain at a single location for more than 6 months, an application (FCC Form 494) for a station authorization designating that single location as the permanent location shall be filed at least 30 days prior to the expiration of the 6-month period.

(iii) The station shall be used only for rendition of communication service at a remote point where the provision of wire facilities is not practicable.

(iv) The antenna structure height employed at any location shall not exceed the criteria set forth in §17.7 of this chapter unless, in each instance, authorization for use of a specific maximum antenna structure height for each location has been obtained from the Commission prior to erection of the antenna. See [§21.114.]

(2) Applications for authorizations to operate stations at temporary locations under the provisions of this section shall be made upon FCC Form 494. Blanket applications may be submitted for the required number of transmitters.

(3) The licensee of stations which are authorized pursuant to the provisions of paragraphs (f) and (g) of this section shall notify the Commission at least 5 days prior to installation of the facilities, stating:

(i) The call sign, manufacturer's name, type or model number, output power and specific location of the transmitter(s).

(ii) The maintenance location for the transmitter.

(iii) The location of the transmitting or receiving station with which it will communicate and the identity of the correspondent operating such facilities.

(iv) The exact frequency or frequencies to be used.

(v) The public interest, convenience and necessity to be served by operation of the proposed installation.

(vi) The commencement and anticipated termination dates of operation from each location. In the event the actual termination date differs from the previous notification, written notice thereof promptly shall be given to the Commission.

(vii) A notification shall include compliance with the provisions of [§21.706(c)] when operations are to be conducted in the area of other terrestrial microwave stations and with the provisions of [§21.706(c) and (d)] when operations are to be conducted within the coordination distance contours of a fixed earth station.

(viii) Where the notification contemplates initially a service which is to be rendered for a period longer than 90 days, the notification shall contain a showing as to why application should not be made for regular authorization.

(4) Less than 5 days advance notice may be given when circumstances require shorter notice provided such notice is promptly given and the reasons in support of such shorter notice are stated.

(5) A copy of the notification shall be kept with the station license.

REASON FOR RULE:

TIA proposes adopting Part 21 provisions governing temporary authorizations and operation, except for substituting the Section 94.43 language for granting Special Temporary Authorizations ("STA"). TIA supports adoption of the Part 21 provisions because they are more specific than Part 94 provisions, with the exception of the STA rules.

TIA proposes adoption of rules permitting grant of a BSTA. Even though application processing time has been reduced, operators still need flexibility to construct and operate a system before license application processing is completed. Grant of a BSTA, under the conditions proposed, would provide such flexibility.

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